



Microgravity Science Glovebox (MSG)



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Objective:

- ♦ To provide a facility onboard the ISS to conduct research/technology demonstrations by:
 - Providing an enclosed isolated working volume with distributed resources for the implementation and observation of Investigations
 - Providing for facility integration and support of selected experiments
 - Successfully supporting the operation of research investigations/technology demonstrations through their assigned mission segments

Relevance/Impact:

- ♦ The MSG can be utilized for multi-Program tasks
- ♦ MSG Team provides over a decade of experience with glovebox and experiment design, build, integration and operation

Development Approach:

- ♦ The Microgravity Science Glovebox (MSG) is a double rack facility designed for research investigation handling aboard the International Space Station (ISS). The MSG consists of the Core Facility (CF) and the International Standard Payload Rack (ISPR) with its Standard Payload Outfitting Equipment (SPOE).
- ♦ The MSG facility provides an enclosed working area for investigation manipulation and observation in the ISS. This working area can serve as an isolated environment with a constantly circulating environment that is maintained at a pressure below ambient. This is accomplished by a design that includes multiple air circulation modes, multiple purpose filters and numerous resource accommodations for investigation interface.
- ♦ The MSG Facility was selected for installation and early operation on the ISS. The European Space Agency (ESA) developed the MSG facility in accordance with the Memorandum of Understanding (MOU) between the National Aeronautics and Space Administration (NASA) and ESA.



Marshall Space Flight Center

MSG has been performing research on ISS since 2002



Experiment Accommodations

| | |
|--|---|
| Work Volume (0.255m3) | 906mm wide x 637 mm high 500mm deep (at floor), 385mm deep (at top) |
| Experiment Size | Max 406mm diameter (insertion through side port) |
| Power To Experiments (1000 watts total) | 7 amps @ 28volts, 8 amps @ 5 volts 2 amps @ +12volts, 2 amps @ -12volts 8.3 amps @120 volts |
| Heat Dissipation | 800 watts from cold plate; 200 watts from air flow |
| Video | 4 video cameras, 4 recorders |
| Data Handling | Two S422, One MIL-BUS-1553B, Two Ethernet |

Revision Date: 05/22/06

Project Life Cycle Schedule

| Milestones | MOU | PDR | CDR | JIP | Eng Unit Del | MSFC CoFR | Flight Unit Del | Launch | Transfer of Ownership | Ops | Return |
|--------------|---------|---------|----------|----------|--------------|-----------|-----------------|--------|-----------------------|---------|--------|
| Actual Dates | 3/18/97 | 3/27/97 | 10/16/97 | 10/20/99 | 7/16/01 | 3/8/03 | 10/23/01 | 6/5/02 | 8/14/03 | Ongoing | TBD |